

STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: May 12, 2021

FROM: Andrew O'Sullivan *AOS*
Wetlands Program Manager

AT (OFFICE): Department of
Transportation

SUBJECT: Dredge & Fill Application
Canaan, 42938

Bureau of
Environment

TO: Karl Benedict, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Design for the subject major impact project. The project is located along US Route 4 in the Town of Canaan, NH. The proposed work consists of repairing the existing bridge that carries US Route 4 over the Indian River in Canaan, NH (Bridge #169/073).

This project was reviewed at the Natural Resource Agency Coordination Meeting on November 18, 2020. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: <http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm>.

NHDOT anticipates and request that this project be reviewed and permitted by the Army Corp of Engineers through the State Programmatic General Permit process. A copy of the application has been sent to the Army Corp of Engineers.

Mitigation is not required for the project.

The lead people to contact for this project are David Scott, Bureau of Bridge Design (271-2731 or David.Scott@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-0556 or Andrew.O'Sullivan@dot.nh.gov).

A payment voucher has been processed for this application (Voucher # 645911) in the amount of \$3410.40.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

AMO:amo

cc:

BOE Original

Town of Canaan (4 copies via certified mail)

David Trubey, NH Division of Historic Resources (Cultural Review Within)

Carol Henderson, NH Fish & Game (via electronic notification)

Maria Tur, US Fish & Wildlife (via electronic notification)

Beth Alafat & Jeanie Brochi, US Environmental Protection Agency (via electronic notification)

Michael Hicks & Rick Kristoff, US Army Corp of Engineers (via electronic notification)

Kevin Nyhan, BOE (via electronic notification)

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Canaan 42938
Preservation of Bridge #169/073 –
US 4 over Indian River
Standard Dredge and Fill Application



April, 2021

Contents

Standard Dredge and Fill Application	1
USGS Locus Map	8
Attachment A: Minor and Major Projects.....	9
Avoidance and Minimization Checklist.....	18
Natural Resource Agency Coordination Meeting Minutes.....	21
Wetlands Functional Assessment Worksheet	24
USGS Watershed Boundaries Map	30
USGS StreamStats Watershed Boundary.....	31
1.0 Project Description	32
2.0 Requirements for Application Evaluation	33
Env-Wt 904.01 General Design Considerations.....	33
Env-Wt 904.02 Conditions Applicable to All Stream Crossing Work.....	34
Env-Wt 904.09 Repair, Rehabilitation, or Replacement of Tier 3 and Tier 4 Existing Legal Crossings...	34
Attachments.....	35
Attachment B - NHHNB and NHFG Correspondence	
Attachment C - USFWS Correspondence	
Attachment D - Section 106 Appendix B	
Attachment E - Corps Secondary Impacts Checklist	
Attachment F - Functional Assessment Photographs	
Attachment G - Construction Sequence	
Project Plans	



**STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION**
Water Division/Land Resources Management
Wetlands Bureau
[Check the Status of your Application](#)



RSA/Rule: RSA 482-A/Env-Wt 100-900

APPLICANT'S NAME: NHDOT

TOWN NAME: Canaan

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the [Waiver Request Form](#).

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))	
Please use the Wetland Permit Planning Tool (WPPT) , the Natural Heritage Bureau (NHB) DataCheck Tool , the Aquatic Restoration Mapper , or other sources to assist in identifying key features such as: priority resource areas (PRAs) , protected species or habitats , coastal areas, designated rivers, or designated prime wetlands.	
Has the required planning been completed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the property contain a PRA? If yes, provide the following information:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04. 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • Protected species or habitat? <ul style="list-style-type: none"> ○ If yes, species or habitat name(s): <u>Smooth green snake, wood turtle</u> ○ NHB Project ID #: <u>NHB20-3228</u> 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
• Bog?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Floodplain wetland contiguous to a tier 3 or higher watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Designated prime wetland or duly-established 100-foot buffer?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
• Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the property within a Designated River corridor? If yes, provide the following information:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • Name of Local River Management Advisory Committee (LAC): NA • A copy of the application was sent to the LAC on Month: <input type="text"/> Day: <input type="text"/> Year: <input type="text"/> 	

irm@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

www.des.nh.gov

For dredging projects, is the subject property contaminated? • If yes, list contaminant: <input type="text"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is there potential to impact impaired waters, class A waters, or outstanding resource waters?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
For stream crossing projects, provide watershed size (see WPPT or Stream Stats): <input type="text" value="21,958 acres"/>	
SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))	
Provide a brief description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached"; please use the space provided below.	
<p>The proposed project is for preservation activities to extend the life of Bridge 169-073 over the Indian River (Attachment B, Locus Map). The project will include the following activities: bridge deck repairs with new membrane and pavement, expansion joint replacement, installation of asphaltic plug for crack control at abutment, bridge curb repairs, concrete abutment and wingwall repairs, clean and paint ends of beams and bearings, and water repellent application on all exposed concrete surfaces. There is no road widening proposed as the new pavement would fall within the existing pavement footprint. Impacts include 692 square feet of temporary bank impact to the Indian River, 6177 square feet of temporary surface water impact to the Indian River, and 1657 square feet of temporary impact to an emergent wetland adjacent to the Indian River (Project Plans). No permanent impacts are proposed for the project.</p>	
SECTION 3 - PROJECT LOCATION	
Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.	
ADDRESS: <input type="text" value="US Route 4 (Mascoma Valley Road)"/>	
TOWN/CITY: <input type="text" value="Canaan"/>	
TAX MAP/BLOCK/LOT/UNIT: <input type="text" value="Not applicable/ROW"/>	
US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: <input type="text" value="Indian River"/> <input type="checkbox"/> N/A	
(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places): 43.646309° North -72.024675° West	

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a))		
If the applicant is a trust or a company, then complete with the trust or company information.		
NAME: NHDOT - David Scott		
MAILING ADDRESS: 7 Hazen Drive		
TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03302
EMAIL ADDRESS: David.L.Scott@dot.nh.gov		
FAX: NA	PHONE: 603-271-2731	
ELECTRONIC COMMUNICATION: By initialing here: <u>DSL</u> , I hereby authorize NHDES to communicate all matters relative to this application electronically.		
SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c))		
<input type="checkbox"/> N/A		
LAST NAME, FIRST NAME, M.I.: Ferguson, Kevin		
COMPANY NAME: TRC		
MAILING ADDRESS: 670 Commercial Street, Suite 203		
TOWN/CITY: Manchester	STATE: NH	ZIP CODE: 03101
EMAIL ADDRESS: kferguson@trccompanies.com		
FAX: NA	PHONE: 603-851-5770	
ELECTRONIC COMMUNICATION: By initialing here <u>KF</u> , I hereby authorize NHDES to communicate all matters relative to this application electronically.		
SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b))		
If the owner is a trust or a company, then complete with the trust or company information.		
<input checked="" type="checkbox"/> Same as applicant		
NAME: [REDACTED]		
MAILING ADDRESS: [REDACTED]		
TOWN/CITY: [REDACTED]	STATE: [REDACTED]	ZIP CODE: [REDACTED]
EMAIL ADDRESS: [REDACTED]		
FAX: [REDACTED]	PHONE: [REDACTED]	
ELECTRONIC COMMUNICATION: By initialing here [REDACTED], I hereby authorize NHDES to communicate all matters relative to this application electronically.		

SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):

Env-Wt 400: Water courses were delineated according to Env-Wt 406.04, wetlands were delineated according to Env-Wt 406.05, and wetlands were classified on the attached Project Plans according to Env-Wt 406.06. The project is classified as a major impact under Env-Wt 407.02.

Env-Wt 500, Env-Wt 600, Env-Wt 700: N/A

Env-Wt 900: The proposed project was designed in accordance with Env-Wt 904.01 and will not cause degradation to the temporarily impacted perennial stream. There are no proposed changes to the stream channel and to connectivity or channel substrate. Appropriate best management practices including sedimentation and erosion controls will be implemented during the project. A sandbag cofferdam will be used to conduct work in the dry and no changes to the stream channel dimensions will occur. The proposed project was designed in accordance with Env-Wt 904.02 and will be conducted during low flow and in dry conditions by use of a sandbag cofferdam. The proposed project was designed in accordance with Env-Wt 904.09. The proposed work falls under the definition of repair provided in Env-Wt 902.24: "Repair" as applied to a stream crossing means work on an existing legal structure to allow the structure to remain in place where the necessary work does not include the installation of new structural components." Repair work within wetlands jurisdiction is limited to patching of concrete on the bridge abutments. No changes in bridge dimensions, flow capacity, or aquatic organism passage will occur as a result of these activities.

SECTION 8 - AVOIDANCE AND MINIMIZATION

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).* Any project with unavoidable jurisdictional impacts must then be minimized as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#) and the [Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet](#). For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the [Avoidance and Minimization Checklist](#), the [Avoidance and Minimization Narrative](#), or your own avoidance and minimization narrative.

**See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.*

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation [pre-application meeting](#) must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: Day: Year:

N/A - Mitigation is not required

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c)

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable: I confirm submittal.

N/A – Compensatory mitigation is not required

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without a permit).

For intermittent and ephemeral streams, the linear footage of impact is measured along the thread of the channel. *Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/ivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

Temporary impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Scrub-shrub Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Emergent Wetland			<input type="checkbox"/>	1657		<input type="checkbox"/>
	Wet Meadow			<input type="checkbox"/>			<input type="checkbox"/>
	Vernal Pool			<input type="checkbox"/>			<input type="checkbox"/>
	Designated Prime Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Duly-established 100-foot Prime Wetland Buffer			<input type="checkbox"/>			<input type="checkbox"/>
Surface Water	Intermittent / Ephemeral Stream			<input type="checkbox"/>			<input type="checkbox"/>
	Perennial Stream or River			<input type="checkbox"/>	6177	228	<input type="checkbox"/>
	Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - River			<input type="checkbox"/>			<input type="checkbox"/>
Banks	Bank - Intermittent Stream			<input type="checkbox"/>			<input type="checkbox"/>
	Bank - Perennial Stream / River			<input type="checkbox"/>	692	156	<input type="checkbox"/>
	Bank / Shoreline - Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
Tidal	Tidal Waters			<input type="checkbox"/>			<input type="checkbox"/>
	Tidal Marsh			<input type="checkbox"/>			<input type="checkbox"/>
	Sand Dune			<input type="checkbox"/>			<input type="checkbox"/>
	Undeveloped Tidal Buffer Zone (TBZ)			<input type="checkbox"/>			<input type="checkbox"/>
	Previously-developed TBZ			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - Tidal Water			<input type="checkbox"/>			<input type="checkbox"/>
TOTAL					8526	384	

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)

MINIMUM IMPACT FEE: Flat fee of \$400.

NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION: Flat fee of \$400 (refer to RSA 482-A:3, 1(c) for restrictions).

MINOR OR MAJOR IMPACT FEE: Calculate using the table below:

Permanent and temporary (non-docking):	8526 SF	× \$0.40 =	\$ 3410.40
Seasonal docking structure:	SF	× \$2.00 =	\$
Permanent docking structure:	SF	× \$4.00 =	\$
Projects proposing shoreline structures (including docks) add \$400 =			\$
Total =			\$

The application fee for minor or major impact is the above calculated total or \$400, whichever is greater = \$ 3410.40

SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05)

Indicate the project classification.

Minimum Impact Project
 Minor Project
 Major Project

SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)

Initial each box below to certify:

Initials: DL S _____ _____	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: DL S _____ _____	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials: DL S _____ _____	The signer understands that: <ul style="list-style-type: none"> • The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: <ol style="list-style-type: none"> 1. Deny the application. 2. Revoke any approval that is granted based on the information. 3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. • The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. • The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact forestry SPN projects and minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.
Initials: _____ _____ _____	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)

SIGNATURE (OWNER): _____ <i>David L. Scott</i> _____	PRINT NAME LEGIBLY: David L. Scott	DATE: May 6, 2021
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER): _____	PRINT NAME LEGIBLY: _____	DATE: _____
SIGNATURE (AGENT, IF APPLICABLE): _____	PRINT NAME LEGIBLY: _____	DATE: _____

SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))

As required by RSA 482-A:3, I(a)(1), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

TOWN/CITY CLERK SIGNATURE: _____	PRINT NAME LEGIBLY: State Agencies Exempt per RSA 482-A:3, I(a)
-------------------------------------	--

TOWN/CITY: <input type="text"/>	DATE: <input type="text"/>
---------------------------------	----------------------------

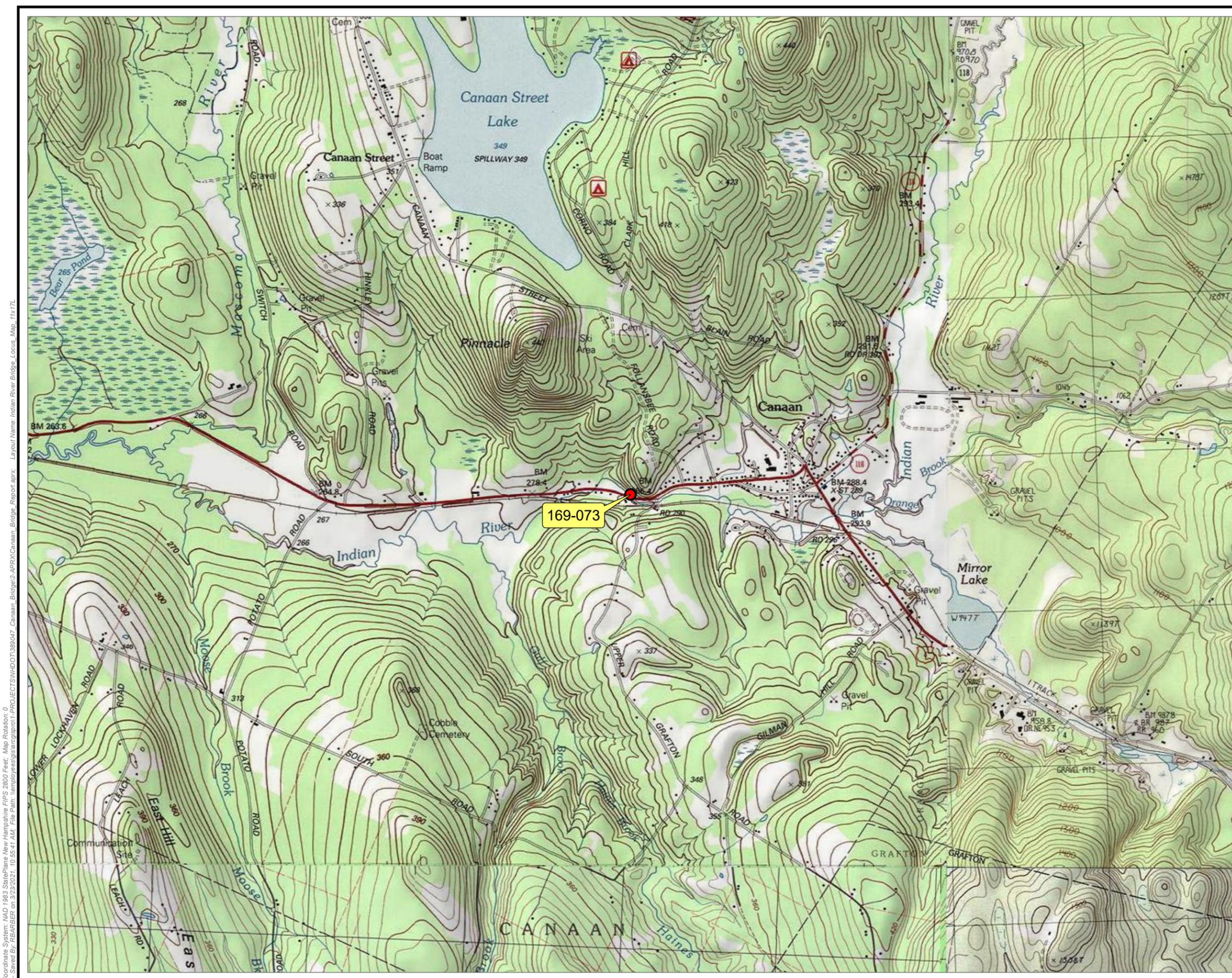
DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
3. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board.
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

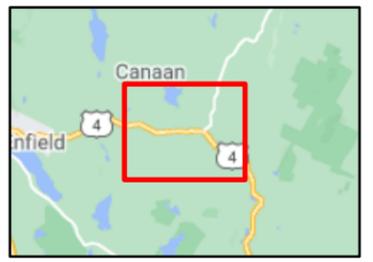
DIRECTIONS FOR APPLICANT:

Submit the original permit application form bearing the signature of the Town/City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery at the address at the bottom of this page. Make check or money order payable to "Treasurer – State of NH".



● Bridge Location

BASE MAP: GOOGLE COLOR ORTHO IMAGERY
DATA SOURCES: TRC



1:24,000
1" = 2,000'
0 2,000 4,000 FEET

PROJECT:		NH DOT	
		CANAAN 42938 - US 4 OVER INDIAN RIVER	
TITLE:		USGS LOCUS MAP	
DRAWN BY:	R. BARBER	PROJ. NO.:	389047.0000.0000
CHECKED BY:	A. THOMPSON	FIGURE 1	
APPROVED BY:	K. FERGUSON		
DATE:	MARCH 2021		
		670 N Commercial Street Suite 203 Manchester, NH 03101	
FILE:		Canaan_Bridge_Report	

Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet; Map Rotation: 0
- Saved By: RBARBER on 3/23/2021 10:55:41 AM; File Path: I:\employees\jarcis\proj\PROJECTS\NH\DOT\389047_Canaan_Bridge\2-APPX\Canaan_Bridge_Report.aprx; Layout Name: Indian River Bridge_Locus_Map_11x17.tlx



STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION
ATTACHMENT A: MINOR AND MAJOR PROJECTS



Water Division/Land Resources Management
Wetlands Bureau

[Check the Status of your Application](#)

RSA/ Rule: RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

APPLICANT'S NAME: NHDOT

TOWN NAME: Canaan

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the [Avoidance and Minimization Narrative](#) or [Checklist](#) that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

PART I: AVOIDANCE AND MINIMIZATION

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#).

SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

THE ONLY ALTERNATIVE THAT WOULD HAVE LESS IMPACT TO JURISDICTIONAL SURFACE WATERS WOULD BE THE NO-BUILD ALTERNATIVE. THE NO-BUILD ALTERNATIVE WOULD NOT ADDRESS THE DETERIORATING CONDITIONS OF BRIDGE 169-073 OVER THE INDIAN RIVER. [REDACTED]

SECTION I.II - MARSHEs (Env-Wt 313.03(b)(2))

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

The project as proposed does not impact tidal or non-tidal marshes.

SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

The impacts to the Indian River and the adjacent wetland will be temporary. No changes to the bridge dimensions or hydraulic opening of the bridge are proposed. Repair work will be conducted in dry/low flow conditions (i.e. July 30 - October 15) to maintain the hydrologic connection within the channel outside of the water diversion structure. Upon completion of the project the impacted areas will be restored to existing conditions.

SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

Access to the abutments for the concrete repairs at the Indian River bridge (Bridge 169-073) will be achieved along the northwestern portion of the right-of-way (Project Plans). It was determined during the design phase of project development that access from the northeast, southeast or southwest would require significant site modifications due to steep slopes and other features to remain (trees, stone abutments, etc.). Therefore the route of access determined will have the least impact possible to jurisdictional areas. NHHNB indicated the project is located in close proximity to known occurrences of species of Special Concern (Attachment C, NHHNB and NHFG Correspondence). To prevent impacts to these species during bridge repair, wildlife friendly erosion control measures and best management practices will be implemented during the construction of the project.

SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))

Describe how the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation, or recreation.

US Route 4 serves as a roadway providing public commerce from Canaan to the surrounding communities. The rehabilitation of Bridge 169-073 over the Indian River during this project is essential to allow the continued use of the bridges for future public commerce. During project construction, the roadway will be limited to one-lane of alternating two-way traffic. These impacts will be temporary and are not expected to increase traffic volumes or contribute to major traffic delays. The project as proposed avoids and minimizes impacts that eliminate, depreciate, or obstruct public commerce. The project as proposed will have no effect on navigation or recreation.

SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

During the proposed project temporary impacts to an emergent wetland within a FEMA 100-year floodplain will occur (Project Plans). Work will be conducted during dry/low flow conditions. Impacts to this floodplain wetland have been minimized to the greatest extent possible and erosion and sedimentation control measures and best management practices will be implemented during construction.

SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

Riverine forested wetlands and scrub-shrub wetlands will not be impacted.

SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

In-water work will occur only at the Indian River bridge (Bridge 169-073). The work area will be dewatered and conducted in the dry using a cofferdam constructed with sandbags. During the repair of the bridge appropriate sedimentation and erosion control measures will be implemented to prevent impacts to adjacent drinking water supply or groundwater aquifer levels.

SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

Impacts to the Indian River for access to the abutment for the repair of Bridge 169-073 will be temporary and upon completion will be restored to existing site conditions. Work will be conducted in the dry by installing a cofferdam and dewatering the work area prior to repair activities. Water will be pumped to an adjacent upland area to be filtered to prevent sedimentation or erosion impacts to the river. All appropriate erosion and sedimentation measures will be implemented during construction.

SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

The project does not involve shoreline structures. This section is not applicable.

SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

The project does not involve shoreline structures. This section is not applicable.

SECTION I.XII - SHORELINE STRUCTURES – ABUTTING PROPERTIES (Env-Wt 313.03(c)(3))

Describe how the structures have been designed to avoid and minimize impacts on ability of abutting owners to use and enjoy their properties.

The project does not involve shoreline structures. This section is not applicable.

SECTION I.XIII - SHORELINE STRUCTURES – COMMERCE AND RECREATION (Env-Wt 313.03(c)(4))

Describe how the structures have been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.

The project does not involve shoreline structures. This section is not applicable.

SECTION I.XIV - SHORELINE STRUCTURES – WATER QUALITY, AQUATIC VEGETATION, WILDLIFE AND FINFISH HABITAT (Env-Wt 313.03(c)(5))

Describe how the structures have been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.

The project does not involve shoreline structures. This section is not applicable.

SECTION I.XV - SHORELINE STRUCTURES – VEGETATION REMOVAL, ACCESS POINTS, AND SHORELINE STABILITY (Env-Wt 313.03(c)(6))

Describe how the structures have been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.

The project does not involve shoreline structures. This section is not applicable.

PART II: FUNCTIONAL ASSESSMENT	
REQUIREMENTS	Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).
FUNCTIONAL ASSESSMENT METHOD USED: USACE Highway Methodology Workbook	
NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: VICKI CHASE	
DATE OF ASSESSMENT: 3/18/2021	
Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT: <input checked="" type="checkbox"/>	
For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable: <input checked="" type="checkbox"/>	
Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.	



AVOIDANCE AND MINIMIZATION CHECKLIST

Water Division/Land Resources Management Wetlands Bureau



[Check the Status of your Application](#)

RSA/Rule: RSA 482-A/ Env-Wt 311.07(c)

This checklist can be used in lieu of the written narrative required by Env-Wt 311.07(a) to demonstrate compliance with requirements for Avoidance and Minimization (A/M), pursuant to RSA 482-A:1 and Env-Wt 311.07(c).

For the construction or modification of non-tidal shoreline structures over areas of surface waters without wetland vegetation, complete only Sections 1, 2, and 4 (or the applicable sections in [Attachment A: Minor and Major Projects \(NHDES-W-06-013\)](#)).

The following definitions and abbreviations apply to this worksheet:

- “A/M BMPs” stands for [Wetlands Best Management Practice Techniques for Avoidance and Minimization](#) dated 2019, published by the New England Interstate Water Pollution Control Commission (Env-Wt 102.18).
- “Practicable” means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (Env-Wt 103.62).

SECTION 1 - CONTACT/LOCATION INFORMATION		
APPLICANT LAST NAME, FIRST NAME, M.I.: NHDOT		
PROJECT STREET ADDRESS: US Route 4 (Mascoma Valley Road)	PROJECT TOWN: Canaan	
TAX MAP/LOT NUMBER: Not applicable/ROW		
SECTION 2 - PRIMARY PURPOSE OF THE PROJECT		
Env-Wt 311.07(b)(1)	Indicate whether the primary purpose of the project is to construct a water-access structure or requires access through wetlands to reach a buildable lot or the buildable portion thereof.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If you answered “no” to this question, describe the purpose of the “non-access” project type you have proposed: The purpose of the project is to repair bridge 169-073 over the Indian River (Attachment A, Locus Map). Access to the bridge abutments requires movement of heavy equipment to reach the bridge abutments and conduct required work.		

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SECTION 3 - A/M PROJECT DESIGN TECHNIQUES		
Check the appropriate boxes below in order to demonstrate that these items have been considered in the planning of the project. Use N/A (not applicable) for each technique that is not applicable to your project.		
Env-Wt 311.07(b)(2)	For any project that proposes new permanent impacts of more than one acre or that proposes new permanent impacts to a Priority Resource Area (PRA), or both, whether any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.07(b)(3)	Whether alternative designs or techniques, such as different layouts, construction sequencing, or alternative technologies could be used to avoid impacts to jurisdictional areas or their functions and values.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(1) Env-Wt 311.10(c)(2)	The results of the functional assessment required by Env-Wt 311.03(b)(10) were used to select the location and design for the proposed project that has the least impact to wetland functions.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(3)	Where impacts to wetland functions are unavoidable, the proposed impacts are limited to the wetlands with the least valuable functions on the site while avoiding and minimizing impacts to the wetlands with the highest and most valuable functions.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.01(c)(1) Env-Wt 313.01(c)(2) Env-Wt 313.03(b)(1)	No practicable alternative would reduce adverse impact on the area and environments under the department's jurisdiction and the project will not cause random or unnecessary destruction of wetlands.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.01(c)(3)	The project would not cause or contribute to the significant degradation of waters of the state or the loss of any PRAs.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.03(b)(3) Env-Wt 904.07(c)(8)	The project maintains hydrologic connectivity between adjacent wetlands or stream systems.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	Buildings and/or access are positioned away from high function wetlands or surface waters to avoid impact.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	The project clusters structures to avoid wetland impacts.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	The placement of roads and utility corridors avoids wetlands and their associated streams.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The width of access roads or driveways is reduced to avoid and minimize impacts. Pullouts are incorporated in the design as needed.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The project proposes bridges or spans instead of roads/driveways/trails with culverts.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A

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A/M BMPs	The project is designed to minimize the number and size of crossings, and crossings cross wetlands and/or streams at the narrowest point.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 500 Env-Wt 600 Env-Wt 900	Wetland and stream crossings include features that accommodate aquatic organism and wildlife passage.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 900	Stream crossings are sized to address hydraulic capacity and geomorphic compatibility.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
A/M BMPs	Disturbed areas are used for crossings wherever practicable, including existing roadways, paths, or trails upgraded with new culverts or bridges.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
SECTION 4 - NON-TIDAL SHORELINE STRUCTURES		
Env-Wt 313.03(c)(1)	The non-tidal shoreline structure has been designed to use the minimum construction surface area over surfaces waters necessary to meet the stated purpose of the structure.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(2)	The type of construction proposed for the non-tidal shoreline structure is the least intrusive upon the public trust that will ensure safe navigation and docking on the frontage.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(3)	The non-tidal shoreline structure has been designed to avoid and minimize impacts on the ability of abutting owners to use and enjoy their properties.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(4)	The non-tidal shoreline structure has been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(5)	The non-tidal shoreline structure has been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(6)	The non-tidal shoreline structure has been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A

**Canaan 42938 – Bridge Preservation - NHDOT Natural Resource Agency Meeting Minutes
November 18, 2020**

Vicki Chase of TRC Environmental and Adam Stockin, PE and Karie James, PE of WSP presented the project, which is the preservation for three bridges carrying US Route 4 over the Mascoma River (Br. No. 090-034), over Crystal Lake Brook (Br. No. 096-039), and over Indian River (Br. No. 169-073).

Karie James introduced the project, which is in the conceptual design phase. The purpose is to extend the useful service life of the three bridges by performing bridge repairs. It is anticipated that the repairs will be performed using 1-lane alternating traffic.

(Br. No. 090-034) over the Mascoma Built in 1993 ~ 150 foot span I-beams with concrete deck ~ Traveled way width 43'-2" curb to curb. General Condition Ratings: Deck – 7 – Good – Superstructure – 8 – Very Good

Anticipated Bridge Preservation Work:

- Bridge deck repairs, new membrane & pavement
- At-grade approach slab and sleeper slab repairs, new membrane & pavement
- Expansion joint replacement at approach slab/sleeper slab ends
- Installation of asphaltic plug for crack control at abutments
- Bridge curb repairs
- Minor concrete abutment and wingwall repairs
- Water repellent application on all exposed concrete surfaces

(Br. No. 096-039) over Crystal Lake Brook - the bridge was built in 1941, rebuilt 1993. 3-Span Concrete Slab with total length of 72 feet ~ Traveled way width 43' 2" curb-to-curb. General Condition Ratings: Deck – 7 Good Superstructure – 7 – Good Substructure – 8 – Very Good. The project will involve access to the bridge piers to apply water repellent.

Anticipated Bridge Preservation Work:

- Bridge deck repairs, new membrane & pavement
- Installation of asphaltic plug for crack control at abutments
- Bridge curb repairs
- Minor concrete abutment and wingwall repairs
- Water repellent application on all exposed concrete surfaces

Br. No. 169-073 over the Indian River – this bridge is the most in need of repair and is the bridge driving the project. Built in 1978 ~ 88-ft span I Beam with Concrete Deck ~ Traveled way width 38' 6" curb to curb. General Condition Ratings are not as good as the other two bridges: Deck – 6 Satisfactory Superstructure – 7 – Good. Substructure – 6 – Satisfactory.

Anticipated Bridge Preservation Work:

- Bridge deck repairs, new membrane & pavement
- Clean and Paint Ends of beams and bearings at Abut. B
- Installation of asphaltic plug for crack control at abutment A

- Expansion joint replacement at Abut B
- Bridge curb repairs
- Concrete abutment and wingwall repairs
- Water repellent application on all exposed concrete surfaces

The east abutment and southeast wingwall will require a lot of repair and will need water repellent on all exposed surfaces. Some of the delaminations go all the way down to the stream surface. Staging will be required along the entire lengths of all abutments and wingwalls in order to hammer sound all of the exposed areas in order to determine the exact limits of repair. The repairs will require using a cofferdam to do the work in the dry at Abutment B.

Vicki Chase provided an overview of resources at the bridges. Delineations were completed in October 2020 at all three bridges.

Mascoma River

- >4th Order, Tier 3 Stream
- 121 square-mile watershed
- Permanently flooded, unconsolidated bottom, lower perennial riverine system (R2UBH).
- Designated under NH RSA 483
- PEM wetlands next to river
- WQ impairments – Al, pH, E. Coli
- FEMA Floodway and Floodplain
- SWQPA does not apply per RSA 483-B:5-b.VII

Crystal Lake Brook is a Tier 3 Stream with a 17 square-mile watershed.

- Permanently flooded, unconsolidated bottom, lower perennial riverine system (R2UBH).
- Tributary to the Mascoma River
- PEM Wetlands at toe of slope
- No WQ impairments
- FEMA Floodplain

Indian River is a Tier 3 Stream with a 34 square-mile watershed

- Permanently flooded, unknown perennial, unconsolidated bottom, lower perennial riverine system (R5UBH).
- Tributary to the Mascoma River
- PEM Swale on NW quadrant
- No impairments
- FEMA Floodway

FEMA floodplains are present at all three bridges, and floodways are present at the Mascoma bridge and Indian River Bridge. There is a Wildlife Management Area between the Mascoma River bridge and the Crystal Lake Brook bridge. No involvement with this conservation land is anticipated. All three bridges are surrounded by habitat identified as highest quality in the state in the 2020 NHFG Wildlife Action Plan. There are records of Smooth Green Snake and Wood Turtle in the vicinity of the bridges, no records in the immediate project areas.

Questions:

Melilotus Dube NHDOT: Q. For Bridge 169-073 over the Indian River, would staging be set up during the design phase or would it be done during construction? A. Staging will be set up during construction and repairs made as needed. Engineers have evaluated the bridge and determined approximate areas but were not able to do hammer sounding in every location.

NHDOT Bridge Design: No Comment

Karl Benedict NHDES: Q. Would bridges all be permitted together? A. At this stage only the Indian River bridge is proposed to have impacts, but impacts haven't been calculated yet. If there are impacts at more than one bridge could they be permitted together or would they need to be separate? Karl: They could be combined under one permit, but can get complicated if there are different permit conditions for each bridge. If there are impacts to the slopes there should be a restoration plan. Cofferdams should be installed during low flow when there is not precipitation on the forecast. For NHDES Wetland Rules Env-Wt 904.09 would apply for repair of a Tier 3 stream, which need a few PE certifications. There do not appear to be any changes to hydrology proposed. If there is access needed through wetlands a timber mat should be used.

Sarah Large NHDOT: Q. Will the project be reviewed at another NHDOT resource agency meeting? A. We are scheduled to return.

Lori Sommer NHDES: Comment: If work is within existing infrastructure no mitigation will be required, but we can revisit.

Carol Henderson NHFG: Comment: If erosion control matting is needed wildlife friendly matting should be used. Sarah Large: NHDOT has developed standard commitments including wildlife friendly products that will be used.

Amy Lamb NHHNB: Comment: No rare plants or natural communities, if nothing was documented during resource reviews NHB has no comments.

Lindsey Lefebvre USACE: No Comments

Jamie Sikora FHWA: No Comments

_____ Nature Conservancy: Comment: Note high quality habitat on both the north and south side of NH Route 4. Would like the project team to consider if there is an opportunity to construct a relatively flat wildlife walkway along the armoring. This would create under road wildlife habitat access.

John Sargent NHDOT: Mascoma and Crystal Lake Brook bridges are in very good shape, maintenance is akin to painting a house. Almost all of the work involves the decks, curbing, etc. The Indian River bridge will involve removing soft concrete on the abutments.

Melilotus Dube NHDOT: Work under the Mascoma and Crystal Lake Brook bridges can be accomplished from above by bucket truck or by laborers on foot. No large wheeled equipment will be needed under the bridge. Also, because there are no changes to the infrastructure there would be no changes to the floodplain function.



WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management
Wetlands Bureau



[Check the Status of your Application](#)

RSA/Rule: RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

APPLICANT LAST NAME, FIRST NAME, M.I.: **NHDOT**

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the [Coastal Area Worksheet \(NHDES-W-06-079\)](#) for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the [Avoidance and Minimization Written Narrative \(NHDES-W-06-089\)](#) and the [Avoidance and Minimization Checklist \(NHDES-W-06-050\)](#) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached to the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)	
ADJACENT LAND USE: Commercial, forest	
CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0'	
SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Vicki Chase	
DATE(S) OF SITE VISIT(S): 10/26/2020	DELINEATION PER ENV-WT 406 COMPLETED? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CONFIRM THAT THE EVALUATION IS BASED ON: <input checked="" type="checkbox"/> Office and <input checked="" type="checkbox"/> Field examination.	
METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in blank if "other"): <input checked="" type="checkbox"/> USACE Highway Methodology. <input type="checkbox"/> Other scientifically supported method (enter name/ title): 	

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SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
WETLAND ID: W-GAR-1	LOCATION: (LAT/ LONG) 43.646560°N/-72.025200°W
WETLAND AREA: 1,657 sq. ft.	DOMINANT WETLAND SYSTEMS PRESENT: Emergent
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 0	COWARDIN CLASS: PEM1E
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if not, where does the wetland lie in the drainage basin? In a swale at the outlet of the wetland into Indian River	IS THE WETLAND PART OF: <input type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island? IS THE WETLAND HUMAN-MADE? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
PROPOSED WETLAND IMPACT TYPE: Temporary	PROPOSED WETLAND IMPACT AREA: 1,657 sq. ft.
SECTION 4 - WETLANDS FUNCTIONS AND VALUES (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
<p>The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:</p> <ol style="list-style-type: none"> 1. Ecological Integrity (from RSA 482-A:2, XI) 2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value) 3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat) 4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration) 5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge) 6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat) 7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient Removal) 8. Production Export (Nutrient) (from USACE Highway Methodology) 9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics) 10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention) 11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization) 12. Uniqueness/Heritage (from USACE Highway Methodology) 13. Wetland-based Recreation (from USACE Highway Methodology: Recreation) 14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat) <p>First, determine if a wetland is suitable for a particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE <i>The Highway Methodology Workbook Supplement</i>. Second, indicate which functions and values are principal ("Principal Function/value?" column). As described in <i>The Highway Methodology Workbook Supplement</i>, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.</p>	

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FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Functions/Values: 4, 5, 10 below	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Functions/Values: 4, 5, 10 below
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 5, 6, 7, 8, 9, 10, 13, 18	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wetland located within FEMA Zone AE floodplain
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 1, 7, 15	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Public water supply wells are located downstream
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
7	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 3, 5, 8, 9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 1, 7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 2, 5	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 3, 6, 10, 12, 13, 14, 16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Receives runoff from adjacent uplands and Route 4
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A
12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifier: 22	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 2, 9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 6, 13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

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SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)

Delineations of vernal pools shall be based on the characteristics listed in the definition of “vernal pool” in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3rd Ed.*, 2016, published by the New Hampshire Fish and Game Department; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

“Important Notes” are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE “Vernal Pool Assessment” form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1					
2					
3					
4					
5					

SECTION 6 - STREAM RESOURCES SUMMARY

DESCRIPTION OF STREAM: Perennial, Tier 3	STREAM TYPE (ROSGEN): C2
HAVE FISHERIES BEEN DOCUMENTED? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	DOES THE STREAM SYSTEM APPEAR STABLE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
OTHER KEY ON-SITE FUNCTIONS OF NOTE: N/A	

The following table can be used to compile data on stream resources. “Important Notes” are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Functions/Values: 3, 4, 5, 11 below	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Functions/Values: 3, 4, 5, 11 below
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
3	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 14, 15, 16, 17	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The stream is perennial and flows year-round
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifiers: 8, 9	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	FEMA Zone AE Floodway
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Highway Methodology Qualifier: 1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Public water supply wells are located downstream
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Highway Methodology Qualifier: 9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Stream has defined bed and banks with channelized flow
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04. Please refer to the [Coastal Area Worksheet \(NHDES-W-06-079\)](#) for more information.

irm@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

www.des.nh.gov

Wetlands Functional Assessment Worksheet

Section 7 – Attachments

Wildlife and Vegetation Diversity/Abundance List

Wetland W-GAR-1

Cowardin Class: PEM1E

Vegetation

Nodding sedge (*Carex gynandra*) – 100% Absolute Cover

Wrinkleleaf goldenrod (*Solidago rugosa*) – 2% Absolute Cover

Rough horsetail (*Equisetum hyemale*) – 2% Absolute Cover

Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet; Map Rotation: 0
 - Saved By: R.BARBER on 4/22/2021 10:59:41 AM; File Path: T:\PROJECTS\NH\DOT\389047_Canaan_Bridge\APPROX\Canaan_Bridge_Report.aprx; Layout Name: Indian River Watershed Map - 11x17L



- BRIDGE LOCATION
- HUC 12 WATERSHED BOUNDARY
- MUNICIPAL BOUNDARY

BASE MAP: GOOGLE COLOR ORTHO IMAGERY
 DATA SOURCES: TRC, USGS, GRANIT

1:24,000
 1" = 2,000'



PROJECT:		NH DOT	
		CANAAN 42938 - US 4 OVER INDIAN RIVER	
TITLE:			
USGS Watershed Boundaries Map			
DRAWN BY:	R. BARBER	PROJ. NO.:	389047.0000.0000
CHECKED BY:	P. JACQUES	FIGURE 2	
APPROVED BY:	K. FERGUSON		
DATE:	APRIL 2021		
		670 N Commercial Street Suite 203 Manchester, NH 03101	
FILE:		Canaan_Bridge_Report	

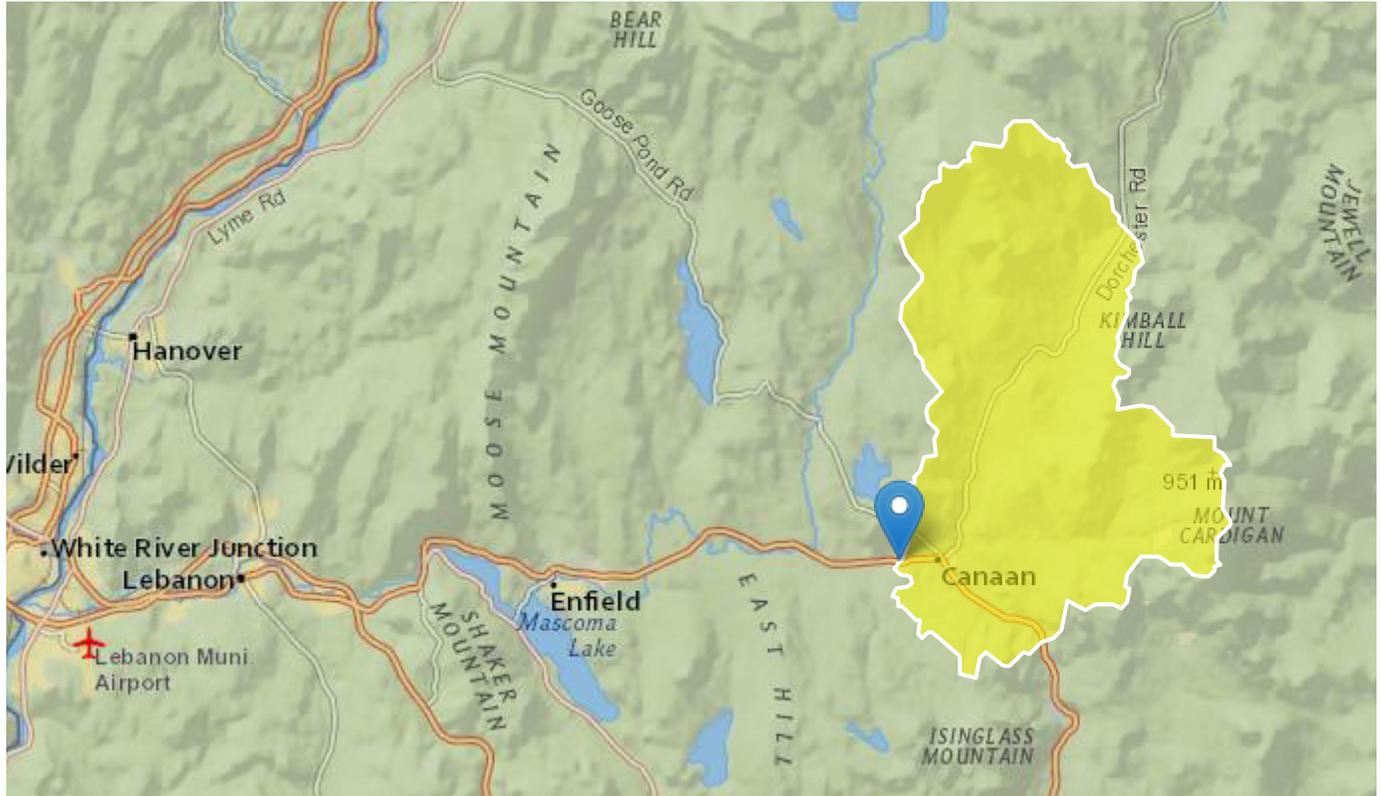
StreamStats Report

Region ID: NH

Workspace ID: NH20201030150606382000

Clicked Point (Latitude, Longitude): 43.64634, -72.02474

Time: 2020-10-30 11:06:25 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	34.31	square miles
APRAVPRE	Mean April Precipitation	3.459	inches
WETLAND	Percentage of Wetlands	3.2863	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	48.9	feet per mi

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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Application Version: 4.4.0

1.0 Project Description

The New Hampshire Department of Transportation (NHDOT) proposes preservation activities to extend the life of Bridge 169-073 over the Indian River on US Route 4 in Canaan, NH (Attachment B, Locus Map). The project will include the following activities: bridge deck repairs with new membrane and pavement, expansion joint replacement, installation of asphaltic plug for crack control at abutment, bridge curb repairs, concrete abutment and wingwall repairs, clean and paint ends of beams and bearings, and water repellent application on all exposed concrete surfaces. There is no proposed road widening proposed as the new pavement would fall within the existing pavement footprint.

Wetland impacts associated with the Bridge 169-073 over the Indian River include temporary impacts to access the abutments for concrete repairs. Impacts include 692 square feet of temporary bank impact to the Indian River, 6,177 square feet of temporary surface water impact to the Indian River, and 1,657 square feet of temporary impact to an emergent wetland adjacent to the Indian River. (See Project Plans.) No permanent impacts are proposed for the project.

2.0 Requirements for Application Evaluation

The following narrative responds to Section 7 of the Standard Dredge and Fill Application under Administrative Rule **Env-Wt 900 – Stream Crossings; Certified Culvert Maintainer Program**:

Env-Wt 904.01 General Design Considerations.

(a) All stream crossings, whether over tidal or non-tidal waters, shall be designed and constructed so as to:

- (1) Not be a barrier to sediment transport;*
- (2) Not restrict high flows and maintain existing low flows;*
- (3) Not obstruct or otherwise substantially disrupt the movement of aquatic organisms indigenous to the waterbody beyond the actual duration of construction;*

The existing crossing is not a barrier to sediment transport, does not restrict high flows, maintains existing flows, and does not disrupt the movement of aquatic organisms. No changes in the hydraulic capacity of the existing crossing will result from the temporary impacts proposed. The proposed repairs will not change the channel cross section, channel width or alignment of the stream.

- (4) Not cause an increase in the frequency of flooding or overtopping of banks;*
- (5) Maintain or enhance geomorphic compatibility by:*
 - a. Minimizing the potential for inlet obstruction by sediment, wood, or debris; and*
 - b. Preserving the natural alignment of the stream channel;*
- (6) Preserve watercourse connectivity where it currently exists;*
- (7) Restore watercourse connectivity where:*
 - a. Connectivity previously was disrupted as a result of human activity(ies); and*
 - b. Restoration of connectivity will benefit aquatic organisms upstream or downstream of the crossing, or both;*
- (8) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and*
- (9) Not cause water quality degradation.*

(b) Work on stream crossings that requires any work in areas that are subject to flowing water shall maintain normal flows and prevent water quality degradation during the work by using best management practices, such as temporary by-pass pipes, culverts, or cofferdams.

There are no proposed changes to the stream channel and to connectivity or channel substrate. Appropriate best management practices including sedimentation and erosion controls will be implemented during the project. A sandbag cofferdam will be used to conduct work in the dry and no changes to the stream channel dimensions will occur.

Env-Wt 904.02 Conditions Applicable to All Stream Crossing Work.

All stream crossing work shall be subject to all applicable conditions in Env-Wt 307, and in particular:

(a) In-stream work shall be done only during:

(1) Low flow or dry conditions, in non-tidal areas; or

The proposed project will be conducted during low flow and in dry conditions by use of a sandbag cofferdam.

Env-Wt 904.09 Repair, Rehabilitation, or Replacement of Tier 3 and Tier 4 Existing Legal Crossings.

(a) The repair, rehabilitation, or replacement of tier 3 stream crossings shall be limited to existing legal crossings where the tier classification is based only on the size of the contributing watershed.

(b) Rehabilitation of a culvert or other closed-bottom stream crossing structure pursuant to this section may be accomplished by concrete repair, slip lining, cured-in place lining, or concrete invert lining, or any combination thereof, except that slip lining shall not occur more than once.

(c) A project shall qualify under this section only if a professional engineer certifies, and provides supporting analyses to show, that:

(1) The existing crossing does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure or protected species habitat; and

(2) The proposed stream crossing will:

a. Meet the general criteria specified in Env-Wt 904.01;

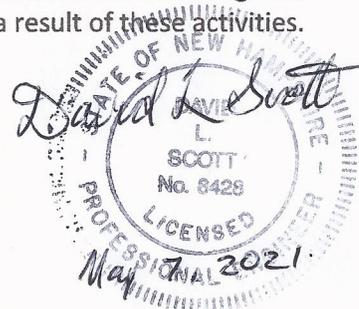
b. Maintain or enhance the hydraulic capacity of the stream crossing;

c. Maintain or enhance the capacity of the crossing to accommodate aquatic organism passage;

d. Maintain or enhance the connectivity of the stream reaches upstream or downstream of the crossing; and

e. Not cause or contribute to the increase in the frequency of flooding or overtopping of the banks upstream or downstream of the crossing.

The proposed work falls under the definition of repair provided in Env-Wt 902.24: "Repair" as applied to a stream crossing means work on an existing legal structure to allow the structure to remain in place where the necessary work does not include the installation of new structural components." Repair work within wetlands jurisdiction is limited to patching of concrete on the bridge abutments. No changes in bridge dimensions, flow capacity, or aquatic organism passage will occur as a result of these activities.



Attachments

CONFIDENTIAL – NH Dept. of Environmental Services review**Memo**

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: Vicki Chase, TRC Solutions
670 Commercial Street
Manchester, NH 03101

From: Amy Lamb, NH Natural Heritage Bureau

Date: 11/10/2020 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB20-3228

Town: Canaan

Location: US Route 4

Description: NHDOT proposes improvements to three bridges on US 4 in Canaan: Bridge No. 169/073 over Indian River, Bridge No. 090/034 over Mascoma River, and Bridge No. 096/039 over Crystal Lake Brook.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Please contact the NH Fish & Game Department to address wildlife concerns. Please note that there are two maps below.

Vertebrate species	State ¹	Federal	Notes
Smooth Green Snake (<i>Opheodrys vernalis</i>)	SC	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (<i>Glyptemys insculpta</i>)	SC	--	Contact the NH Fish & Game Dept (see below).

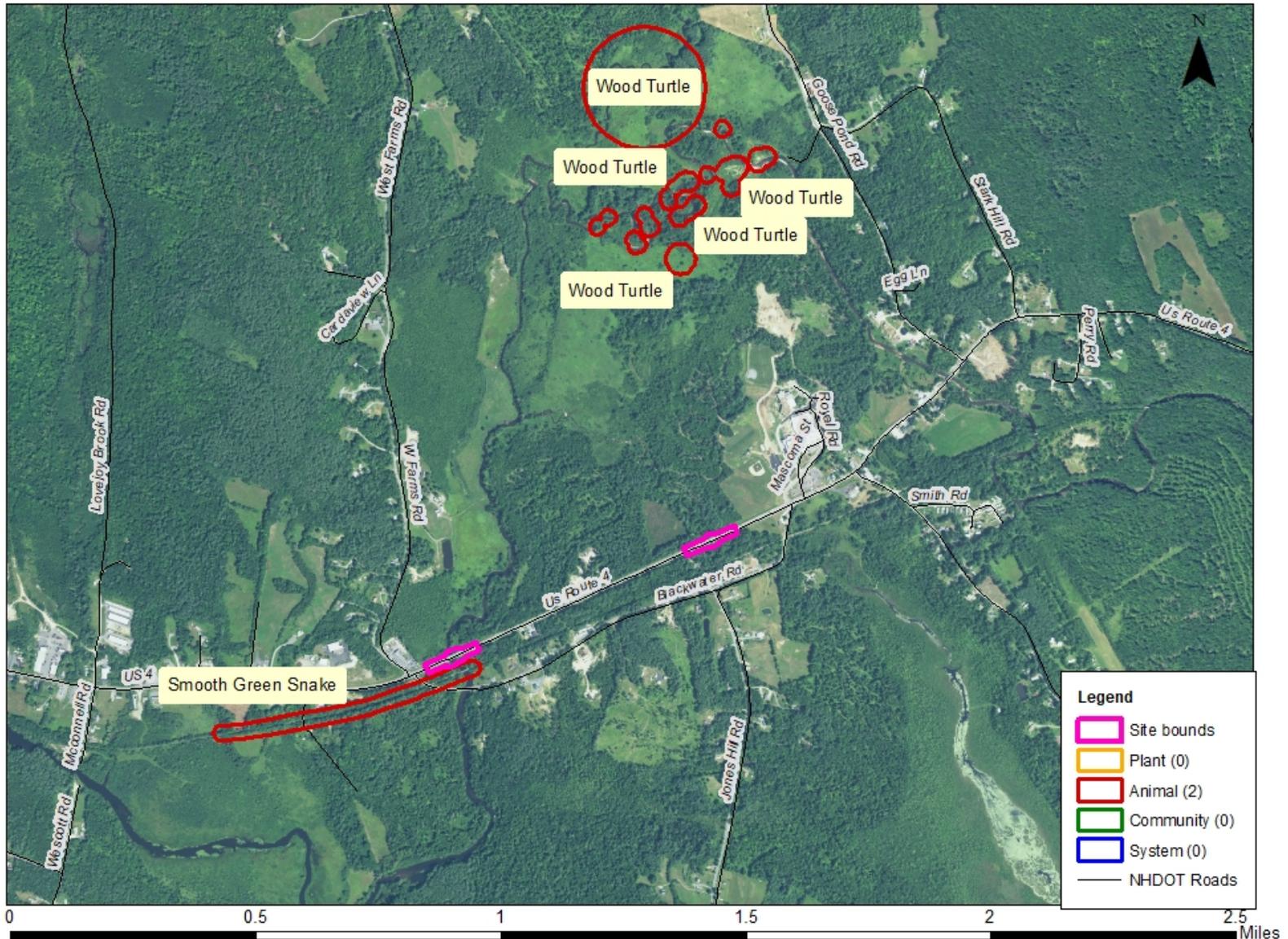
¹Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

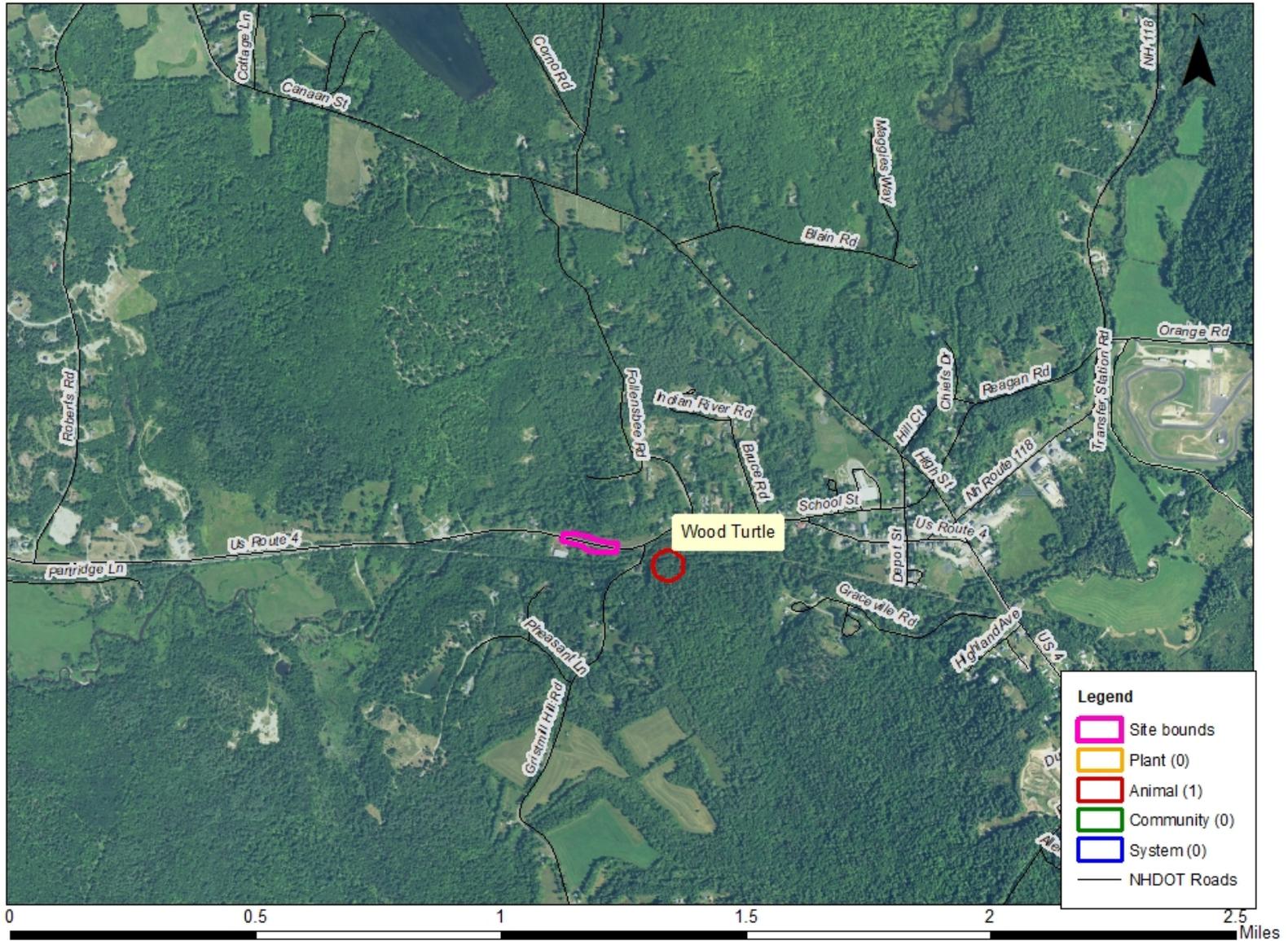
CONFIDENTIAL – NH Dept. of Environmental Services review

NHB20-3228



CONFIDENTIAL – NH Dept. of Environmental Services review

NHB20-3228



Wood Turtle

(Glyptemys insculpta)

(New Hampshire Species of Special Concern)



- Neck and forelimbs are orange.
- Characterized by its highly sculpted shell with each large scute taking on an irregular pyramidal shape.
- Adults can be 5-8 inches long.



Please report sightings to NH Fish and Game at RAARP@wildlife.nh.gov or at 603-271-2461. Photo documentation, location, and date/time of observation is helpful.

NOTE: It is illegal to remove a wood turtle from the wild (RSA 207:1, FIS 804.02).

Ferguson, Kevin

From: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>
Sent: Wednesday, December 23, 2020 8:50 AM
To: Chase, Vicki
Cc: Dube, Melilotus; Ferguson, Kevin; Stockin, Adam; Megyesy, Joshua
Subject: RE: [EXTERNAL] NHB review: NHB20-3228 NH Route 4 Canaan bridge repairs
Attachments: Wood Turtle Flyer_2020.pdf

This is an **EXTERNAL** email. Do not click links or open attachments unless you validate the sender and know the content is safe.

Hello Vicki,

Avoid the use of welded plastic or 'biodegradable plastic' netting or thread in erosion control matting. There are numerous documented cases of snakes, turtles, and other wildlife being trapped and killed in erosion control matting with synthetic netting and thread. The use of erosion control berm, Filtrexx Degradable Woven Silt Sock, or several 'wildlife friendly' options such as woven organic material (e.g. coco or jute matting such as North American Green SC150BN or equivalent) are readily available. Please let us know what specific product you intend on using, if needed.

How will you prevent the water repellent from entering the water during application?

We assume that the abutment and wingwall work will be done in the dry using crib sheeting or sandbags to exclude water from the area, if needed.

To maintain passage for wood turtle, please do not fill the enter width of the stream with rip-rap as the angular surfaces can impede turtle movement, particularly upstream movement through current. A larger size riprap is acceptable near the abutments for scour protection, but the majority of the streambed should be lined with a variety of natural stone sizes, that resemble a representative upstream reach.

The following note should be prominently added to the plans along with a photo of wood turtle that you may copy from the attached flyer:

Construction personnel should be aware of the potential to encounter wood turtles, especially during turtle nesting season which extends from late May through the beginning of July, peaking in mid-June. **IF WOOD TURTLES ARE FOUND LAYING EGGS IN THE WORK AREA, PLEASE CONTACT MELISSA DOPERALSKI (603-479-1129 cell) or JOSH MEGYESY (cell 978-578-0802) FOR FURTHER INSTRUCTIONS.**

Thanks,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Chase, Vicki <VChase@trccompanies.com>
Sent: Tuesday, December 22, 2020 3:46 PM

To: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>

Cc: Dube, Melilotus <Melilotus.M.Dube@dot.nh.gov>; Ferguson, Kevin <KFerguson@trccompanies.com>; Stockin, Adam <Adam.Stockin@wsp.com>

Subject: FW: [EXTERNAL] NHB review: NHB20-3228

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon Kim, TRC is assisting WSP with permitting for preservation activities on three bridges over water on NH Route 4 in Canaan. Design plans are not yet available and proposed activities vary for each bridge, but the project will involve bridge deck and approach repairs, application of water repellent, installation of asphaltic plug for crack control, curb repairs, concrete abutment and wingwall repairs, and cleaning and painting of bridge elements. Work in the water is anticipated to be limited to the Indian River bridge, where the concrete wingwall will be patched. We are seeking your comments for this work related to the recorded occurrences of wood turtle and smooth green snake near these bridges.

Thanks very much,

Vicki Chase

Senior Environmental Project Manager



670 N. Commercial St., Suite 203, Manchester, NH 03101

T 603.263.9412 | **F** 603.621.9279 | **C** 603.782.1892

[LinkedIn](#) | [Twitter](#) | [Blog](#) | [TRCcompanies.com](#)

Please note that our domain name and email addresses have changed.

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>

Sent: Wednesday, November 11, 2020 9:20 AM

To: Chase, Vicki <VChase@trccompanies.com>

Cc: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>

Subject: [EXTERNAL] NHB review: NHB20-3228

This is an EXTERNAL email. Do not click links or open attachments unless you validate the sender and know the content is safe.

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,
Amy

Amy Lamb
Ecological Information Specialist

NH Natural Heritage Bureau
DNCR - Forests & Lands
172 Pembroke Rd

Concord, NH 03301
603-271-2834



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>

In Reply Refer To:

January 04, 2021

Consultation Code: 05E1NE00-2021-SLI-0871

Event Code: 05E1NE00-2021-E-02651

Project Name: Canaan 42938 – Preservation of three bridges on US Route 4 (2)

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-0871

Event Code: 05E1NE00-2021-E-02651

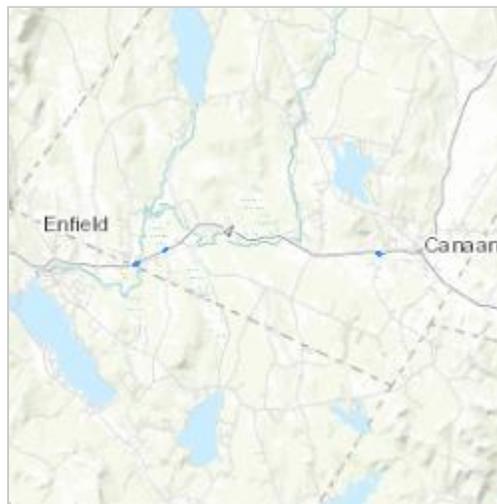
Project Name: Canaan 42938 – Preservation of three bridges on US Route 4 (2)

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: New Hampshire Department of Transportation proposes work to preserve Bridge No. 169/073, US 4 over Indian River; Bridge No. 090/034, US 4 over Mascoma River; and Bridge No. 096/039, US 4 over Crystal Lake Brook.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.646338650000004,-72.02470950452235,14z>



Counties: Grafton County, New Hampshire

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Canaan 42938 – Preservation Of Three Bridges On US Route 4 (2)

Biological Assessment

Prepared using IPaC

January 11, 2021

The purpose of this Biological Assessment (BA) is to assess the effects of the proposed project and determine whether the project may affect any Federally threatened, endangered, proposed or candidate species. This BA is prepared in accordance with legal requirements set forth under [Section 7 of the Endangered Species Act \(16 U.S.C. 1536 \(c\)\)](#).

In this document, any data provided by U.S. Fish and Wildlife Service is based on data as of January 5, 2021.

Prepared using IPaC version 5.55.1

Canaan 42938 – Preservation Of Three Bridges On US Route 4 (2) Biological Assessment

Table Of Contents

1 Description of the action	5
1.1 Project name	5
1.2 Executive summary	5
1.3 Project description	5
1.3.1 Location	5
1.3.2 Description of project habitat	6
1.3.3 Project proponent information	6
1.3.4 Project purpose	6
1.3.5 Project type and deconstruction	7
1.3.6 Anticipated environmental stressors	10
1.4 Action area	10
1.5 Conservation measures	11
1.6 Prior consultation history	11
1.7 Other agency partners and interested parties	11
1.8 Other reports and helpful information	11
2 Species effects analysis	12
2.1 Northern Long-eared Bat	12
Relevant documentation	12
Justification for exclusion	12
3 Critical habitat effects analysis	13
4 Summary Discussion, Conclusion, and Effect Determinations	14
4.1 Effect determination summary	14
4.2 Summary discussion	14
4.3 Conclusion	14

1 Description Of The Action

1.1 Project Name

Canaan 42938 – Preservation of three bridges on US Route 4 (2)

1.2 Executive Summary

New Hampshire Department of Transportation (NHDOT) is proposing maintenance and repair for the preservation of Bridge No. 169/073, US 4 over Indian River; Bridge No. 090/034, US 4 over Mascoma River; and Bridge No. 096/039, US 4 over Crystal Lake Brook (the Project). The purpose of this project to maintain the structural integrity of the bridges for further use. The project will include the following activities: bridge deck and at-grade approach slab and sleeper slab repairs with new membrane and pavement, expansion joint replacements, installation of asphaltic plug for crack control at abutments, bridge curb repairs, concrete abutment and wingwall repairs, clean and paint ends of beams and bearings, and water repellent application on all exposed concrete surfaces. There are no species or critical habitat anticipated to be affected by this project.

[Effect determination summary](#)

1.3 Project Description

1.3.1 Location



LOCATION

Grafton County, New Hampshire

1.3.2 Description of project habitat

The Survey Areas are composed of mixed deciduous and conifer wooded land and a grassy area along the shoulder of US 4. The Survey Areas contain generally sloping topography away from US 4 with several wetland and waterbody features draining to Mascoma Lake.

1.3.3 Project proponent information

Provide information regarding who is proposing to conduct the project, and their contact information. Please provide details on whether there is a Federal nexus.

Requesting Agency

TRC

FULL NAME

Kevin Ferguson

STREET ADDRESS

670 North Commercial Street

CITY

Manchester

STATE

NH

ZIP

03101

PHONE NUMBER

(603) 851-5770

E-MAIL ADDRESS

kferguson@trccompanies.com

Lead agency

DEPT OF TRANSPORTATION (DOT)

Federal Highway Administration (FHWA)

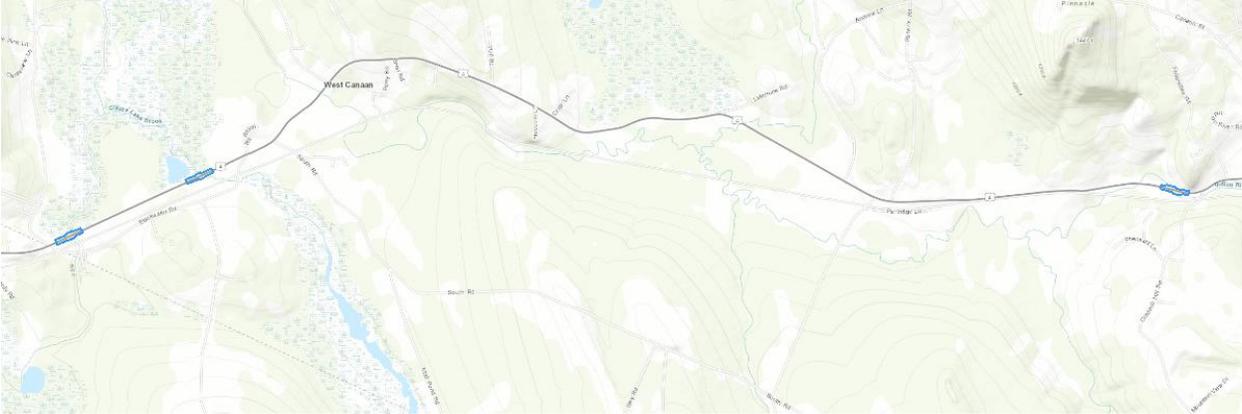
1.3.4 Project purpose

New Hampshire Department of Transportation (NH DOT) is proposing maintenance and repair for the preservation of Bridge No. 169/073, US 4 over Indian River; Bridge No. 090/034, US 4 over Mascoma River; and Bridge No. 096/039, US 4 over Crystal Lake Brook (the Project). The purpose of this project to maintain the structural integrity of the bridges for further use.

1.3.5 Project type and deconstruction

This project is a bridge maintenance and repair project.

1.3.5.1 Project map



LEGEND



Project footprint



Project Areas: Bridge maintenance and repair., bridge structure (structure)

1.3.5.2 bridge structure

Structure completion date

October 31, 2021

Removal/decommission date (if applicable)

Not applicable

Stressors

This activity is not expected to have any impact on the environment.

Description

The project will include the following activities: bridge deck and at-grade approach slab and sleeper slab repairs with new membrane and pavement, expansion joint replacements, installation of asphaltic plug for crack control at abutments, bridge curb repairs, concrete abutment and wingwall repairs, clean and paint ends of beams and bearings, and water repellent application on all exposed concrete surfaces.

1.3.5.3 bridge maintenance and repair.

Activity start date

July 31, 2021

Activity end date

October 31, 2021

Stressors

This activity is not expected to have any impact on the environment.

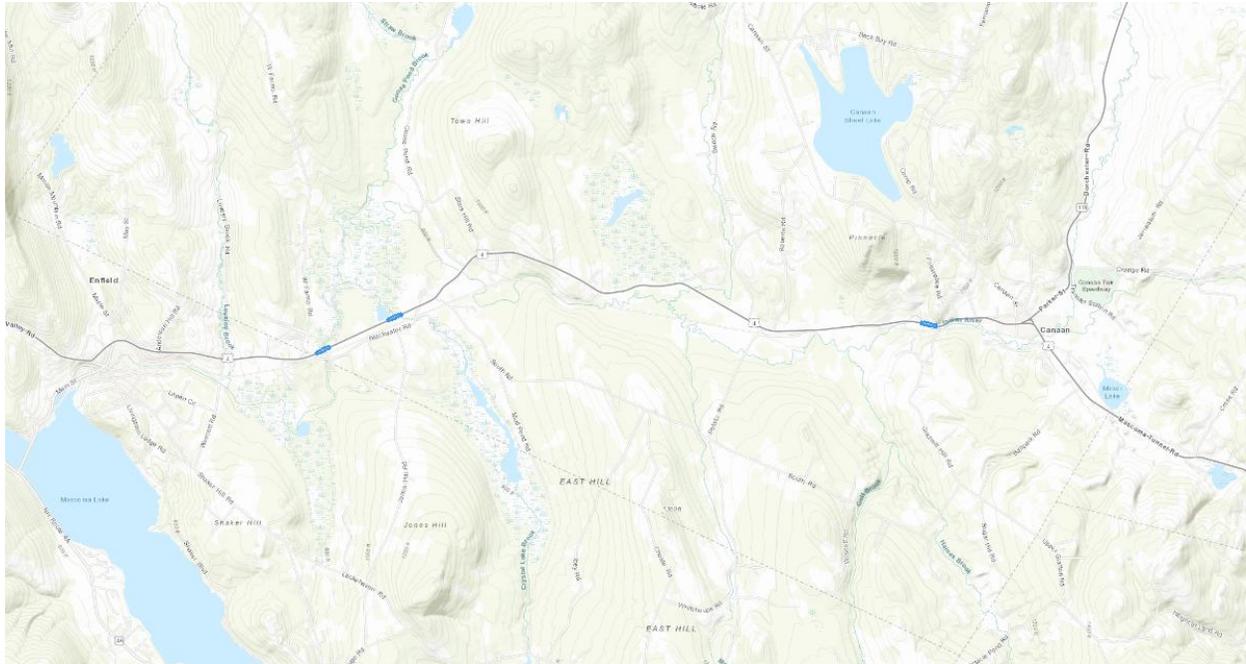
Description

The project involves preservation for three bridges carrying US Route 4 over the Mascoma River (Br. No. 090-034), over Crystal Lake Brook (Br. No. 096-039), and over Indian River (Br. No. 169-073). The project will include the following activities: bridge deck and at-grade approach slab and sleeper slab repairs with new membrane and pavement, expansion joint replacements, installation of asphaltic plug for crack control at abutments, bridge curb repairs, concrete abutment and wingwall repairs, clean and paint ends of beams and bearings, and water repellent application on all exposed concrete surfaces.

1.3.6 Anticipated environmental stressors

Describe the anticipated effects of your proposed project on the aspects of the land, air and water that will occur due to the activities above. These should be based on the activity deconstructions done in the previous section and will be used to inform the action area.

1.4 Action Area



1.5 Conservation Measures

Describe any proposed measures being implemented as part of the project that are designed to reduce the impacts to the environment and their resulting effects to listed species. To avoid extra verbiage, don't list measures that have no relevance to the species being analyzed.

No conservation measures have been selected for this project.

1.6 Prior Consultation History

None.

1.7 Other Agency Partners And Interested Parties

FHWA, Project Sponsor - Jamie Sikora - Environmental Program Manager -
jamie.sikora@dot.gov

1.8 Other Reports And Helpful Information

None.

2 Species Effects Analysis

This section describes, species by species, the effects of the proposed action on listed, proposed, and candidate species, and the habitat on which they depend. In this document, effects are broken down as direct interactions (something happening directly to the species) or indirect interactions (something happening to the environment on which a species depends that could then result in effects to the species).

These interactions encompass effects that occur both during project construction and those which could be ongoing after the project is finished. All effects, however, should be considered, including effects from direct and indirect interactions and cumulative effects.

2.1 Northern Long-Eared Bat

This species has been excluded from analysis in this environmental review document.

Relevant documentation

- [Bridge 169-073 Indian River](#)
- [Bridge 096-040 Crystal Lake Brook](#)
- [Bridge 090-034 Mascoma River](#)

Justification for exclusion

A review has been completed under the Programmatic Biological Opinion Determination Key on the IPaC website.

3 Critical Habitat Effects Analysis

No critical habitats intersect with the project action area.

4 Summary Discussion, Conclusion, And Effect Determinations

4.1 Effect Determination Summary

SPECIES (COMMON NAME)	SCIENTIFIC NAME	LISTING STATUS	PRESENT IN ACTION AREA	EFFECT DETERMINATION
Northern Long-eared Bat	Myotis septentrionalis	Threatened	No	NE

4.2 Summary Discussion

No effects to species or critical habitat are anticipated from these bridge maintenance activities.

4.3 Conclusion

There are no species or critical habitat anticipated to be affected by this project.

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Date Reviewed: 2/4/2021
(Desktop or Field Review Date)

Project Name: CANAAN

State Number: 42938

FHWA Number: X – A 004 (998)

Environmental Contact: Melilotus Dube

DOT

Email Address: Melilotus.M.Dube@dot.nh.gov

Project Manager: Dave Scott

Project Description: Bridge Preservation Project for Bridge No. 090/034 (U.S. Route 4 over Mascoma River), Bridge No. 096/039 (U.S. Route 4 over Crystal Lake Brook), and Bridge No. 169/073 (U.S. Route 4 over Indian River)

Please select the applicable activity/activities:

Highway and Roadway Improvements	
<input type="checkbox"/>	1. Modernization and general highway maintenance that may require additional highway right-of-way or easement , including: Choose an item. Choose an item.
<input type="checkbox"/>	2. Installation of rumble strips or rumble stripes
<input type="checkbox"/>	3. Installation or replacement of pole-mounted signs
<input type="checkbox"/>	4. Guardrail replacement, provided any extension does not connect to a bridge older than 50 years old (unless it does already), and there is no change in access associated with the extension
Bridge and Culvert Improvements	
<input type="checkbox"/>	5. Culvert replacement (excluding stone box culverts), when the culvert is less than 60" in diameter and excavation for replacement is limited to previously disturbed areas
<input checked="" type="checkbox"/>	6. Bridge deck preservation and replacement, as long as no character defining features are impacted
<input checked="" type="checkbox"/>	7. Non-historic bridge and culvert maintenance, renovation, or total replacement, that may require minor additional right-of-way or easement , including: a. replacement or maintenance of non-historic bridges c. bridge painting
<input type="checkbox"/>	8. Historic bridge maintenance activities within the limits of existing right-of-way, including: Choose an item. Choose an item.
<input type="checkbox"/>	9. Stream and/or slope stabilization and restoration activities (including removal of debris or sediment obstructing the natural waterway, or any non-invasive action to restore natural conditions)
Bicycle and Pedestrian Improvements	
<input type="checkbox"/>	10. Construction of pedestrian walkways, sidewalks, sidewalk tip-downs, small passenger shelters, and alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
<input type="checkbox"/>	11. Installation of bicycle racks
<input type="checkbox"/>	12. Recreational trail construction
<input type="checkbox"/>	13. Recreational trail maintenance when done on existing alignment
<input type="checkbox"/>	14. Construction of bicycle lanes and shared use paths and facilities within the existing right-of-way
Railroad Improvements	
<input type="checkbox"/>	15. Modernization, maintenance, and safety improvements of railroad facilities within the existing railroad or highway right-of-way, provided no historic railroad features are impacted , including, but not limited to: Choose an item. Choose an item.

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

	Choose an item.
<input type="checkbox"/>	16. In-kind replacement of modern railroad features (i.e. those features that are less than 50 years old)
<input type="checkbox"/>	17. Modernization/modification of railroad/roadway crossings provided that all work is undertaken within the limits of the roadway structure (edge of roadway fill to edge of roadway fill) and no associated character defining features are impacted
Other Improvements	
<input type="checkbox"/>	18. Installation of Intelligent Transportation Systems
<input type="checkbox"/>	19. Acquisition or renewal of scenic, conservation, habitat, or other land preservation easements where no construction will occur
<input type="checkbox"/>	20. Rehabilitation or replacement of existing storm drains.
<input type="checkbox"/>	21. Maintenance of stormwater treatment features and related infrastructure

Please describe how this project is applicable under Appendix B of the Programmatic Agreement.

This bridge preservation project includes preservation work for bridge numbers 090/034, 096/039, and 169/073, all on U.S. Route 4 in the Town of Canaan. Bridge number 090/034 was built in 1993 and spans over the Mascoma River. Bridge number 096/039 over Crystal Lake Brook was rebuilt in 1993 with all new components, except for the reuse of bearing piles originally built in 1941. The 1941 bearing piles are located below ground in the abutments and piers, and extend above ground as pier columns. Due to the extensive rebuild, the NH Historic Bridge Inventory considers this bridge built in 1993. Bridge number 169/073 over the Indian River was built in 1978, and applies to the Program Comment for post-1945 common bridge types. The scope of work at these three bridges includes bridge deck repairs and substructure repairs to replace deteriorated/damaged concrete, followed by bridge deck membrane and pavement replacement, with related roadway approach work. The extent of roadway approach work is due to traffic control, which is expected to shift traffic to one lane of alternating two-way traffic so that the bridge preservation work can be completed in two phases. Additional bridge preservation work at bridge number 169/073 includes expansion joint replacement, painting of the beam ends, installation of temporary access (expected to be along the NW wingwall and under the bridge), installation of water diversion structures, installation of temporary staging to repair the concrete substructures, and installation of a cofferdam (likely built with sandbags) at Abutment B to perform concrete repairs in the dry. Old stone abutments from a previous crossing south of bridge number 169/073 is outside of the proposed work area.

Please submit this Certification Form along with the Transportation RPR, including photographs, USGS maps, design plans and as-built plans, if available, for review. Note: The RPR can be waived for in-house projects, please consult Cultural Resources Program Staff.

Coordination Efforts:

Has an RPR been submitted to NHDOT for this project?	No	NHDHR R&C # assigned?	Click here to enter text.
Please identify public outreach effort contacts; method of outreach and date:	Letters were sent on December 16, 2020 to Canaan Board of Selectmen, Canaan Conservation Commission, Canaan Historical Society, Canaan Planning Board, Canaan Fire Department, Canaan Town Administrator, Canaan Town Planner, Canaan Road Agent, & Canaan Police Department. A public officials meeting is anticipated but has not yet been scheduled. Only one letter dated January 25, 2021 has been received from the Canaan Planning Board and Historical Society. The only concern listed was in regards to traffic safety at the intersection just west of Br No 090/034.		

Finding: (To be filled out by NHDOT Cultural Resources Staff)

<input checked="" type="checkbox"/>	No Potential to Cause Effects	<input type="checkbox"/>	No Historic Properties Affected
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Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

This finding serves as the Section 106 Memorandum of Effect. No further coordination is necessary.	
<input type="checkbox"/>	This project does <i>not</i> comply with Appendix B. Review will continue under Stipulation VII of the Programmatic Agreement. Please contact NHDOT Cultural Resources Staff to determine next steps.
NHDOT comments:	
	3/4/2021
_____	_____
NHDOT Cultural Resources Staff	Date

Coordination of the Section 106 process should begin as early as possible in the planning phase of the project (undertaking) so as not to cause a delay.

Project sponsors should not predetermine a Section 106 finding under the assumption a project is limited to the activities listed in Appendix B until this form is signed by the NHDOT Bureau of Environment Cultural Resources Program staff.

Every project shall be coordinated with, and reviewed by the NHDOT-BOE Cultural Resources Program in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the New Hampshire State Historic Preservation Office, the Army Corps of Engineers, New England District, the Advisory Council on Historic Preservation, and the New Hampshire Department of Transportation Regarding the Federal Aid Highway Program in New Hampshire*. In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

If any portion of the project is not entirely limited to any one or a combination of the activities specified in Appendix B (with, or without the inclusion of any activities listed in Appendix A), please continue discussions with NHDOT Cultural Resources staff.

This No Potential to Cause Effect or No Historic Properties Affected project determination is your Section 106 finding, as defined in the Programmatic Agreement.

Should project plans change, please inform the NHDOT Cultural Resources staff in accordance with Stipulation VII of the Programmatic Agreement.



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Appendix B

New Hampshire General Permits (GPs) Required Information and Corps Secondary Impacts Checklist

In order for the Corps of Engineers to properly evaluate your application, applicants must submit the following information along with the New Hampshire DES Wetlands Bureau application or permit notification forms. Some projects may require more information. For a more comprehensive checklist, go to <https://www.nae.usace.army.mil/Missions/Regulatory/> “Useful Documents, Forms and Publications” and then “Corps Application Form and Guidance.” Check with the Corps at (978) 318-8832 for project-specific requirements. For your convenience, this Appendix B is also attached to the State of New Hampshire DES Wetlands Bureau application and Permit by Notification forms.

All Projects:

- New Hampshire Department of Environmental Services (DES) Wetlands Permit Application.
- Request for Project Review Form by the New Hampshire Division of Historical Resources (DHR) <https://www.nh.gov/nhdhr/review/rpr.htm>.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible plans no larger than 11”x17” with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show mean low water (MLW) and mean high water (MHW) elevations. Show the high tide line (HTL) elevations when fill is involved. In other waters, show ordinary high water (OHW) elevation.
- On each plan, show the following for the project:
 - Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. In coastal waters this may be mean higher high water (MHHW), mean high water (MHW), mean low water (MLW), mean lower low water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983-2001.
 - Horizontal state plane coordinates in U.S. survey feet based on the Traverse Mercator Grid system for the State of New Hampshire (Zone 2800) NAD 83.
 - Project limits with existing and proposed conditions.
 - Limits of any Federal Navigation Project in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the Federal Navigation Project;
 - Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the OHW in inland waters and below the HTL in coastal waters.
 - Delineation of all waterways and wetlands on the project site,;
- Use Federal delineation methods and include Corps wetland delineation data sheets (GC 2).
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact the Corps for guidance.



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**New Hampshire General Permits (GPs)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to “work” include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		X
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/ . The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X ¹	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?	N/A	
2.7 What is the area of the proposed fill in wetlands?	N/A	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	N/A	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	X ²	

3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: <ul style="list-style-type: none"> • PDF: https://wildlife.state.nh.us/wildlife/wap-high-rank.html. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html. 		X
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 21?	X ³	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X ⁴	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**		X ⁵

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

Supporting Notes:

1. Impacts to the Indian River for access to the abutment for the repair of Bridge 169-073 will be temporary and upon completion will be restored to existing site conditions. Work will be conducted in the dry by installing a cofferdam and dewatering the work area prior to repair activities (Project Plans). Water will be pumped to an adjacent upland area to be filtered prevent sedimentation or erosion impacts to the river. All appropriate erosion and sedimentation measures will be implemented during construction. No changes to the hydraulic opening of the bridge is proposed. Therefore, the hydrology, sediment transport, and wildlife capacity of the existing bridge will be maintained following repair work of the bridge.
2. Consultation with the US Fish and Wildlife Service (USFWS) indicated the proposed action is within the range of the northern long-eared bat (*Myotis septentrionalis*) (NLEB) (Attachment D). The project will not remove or trim any trees during the repair process and the project area is not located within 0.5 miles of a known bat hibernaculum. Therefore, no impact to federally listed species are anticipated during the proposed project. Consultation with New Hampshire Natural Heritage Bureau (NHNHB) indicated there are records of the Special Concern species smooth green snake (*Opheodrys vernalis*) and wood turtle (*Glyptemys insculpta*). Further consultation with New Hampshire Fish and Game (NHF&G) indicated that to prevent impacts to the smooth green snake and wood turtle during bridge repair that wildlife friendly erosion control measures and best management practices be implemented during this project (Attachment C).
3. In reference to General Condition 21 "Bank Stabilization", the project does not involve a bank stabilization component. Impacts to the banks of the Indian River will be temporary and upon completion of the project the banks will be stabilized and re-vegetated to pre-construction conditions. In reference to General Condition 22 "Waterway/Wetland Work and Crossings", the bridge repair work will not interfere with the natural stream processes and will maintain existing hydraulic characteristics. No changes to dimensions of the bridge are proposed as part of this repair work. Natural flow of aquatic life will remain in the portion of the channel outside of the water diversion structures and will be temporary.
4. The project is located in Special Flood Hazard Area Zone AE (regulatory floodway and 100-year floodplain) (Project Plans). The proposed project will not include obstructions or new fill located in floodplains and will not increase base flood elevations. The project as proposed will maintain the hydraulic capacity of the river.
5. The project falls under the Programmatic Agreement among the Federal Highway Administration (FHWA), the New Hampshire State Historic Preservation Office (NHSHPO), the Advisory Council on Historic Preservation (ACHP), and the New Hampshire Department of Transportation (NHDOT) regarding the Federal Aid Highway Program in New Hampshire dated August 7, 2018. Therefore, the Appendix B Certification under the Section 106 agreement was completed for the project and no RPR was sent to the NH Division of Historical Resources (Attachment E).

CANAAN 42938

CANAAN, NEW HAMPSHIRE

Photograph: 1

Date: 10/26/2020

Direction: South

Description:

Conditions observed at perennial stream S-GAR-1 (Indian River).



Photograph: 2

Date: 10/26/2020

Direction: North

Description:

Conditions observed at perennial stream S-GAR-1 (Indian River).



CANAAN 42938
CANAAN, NEW HAMPSHIRE

Photograph: 3

Date: 10/26/2020

Direction: North

Description:

Conditions observed at
W-GAR-1.



Photograph: 4

Date: 10/26/2020

Direction: East

Description:

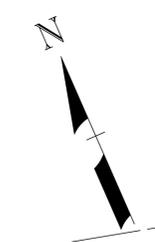
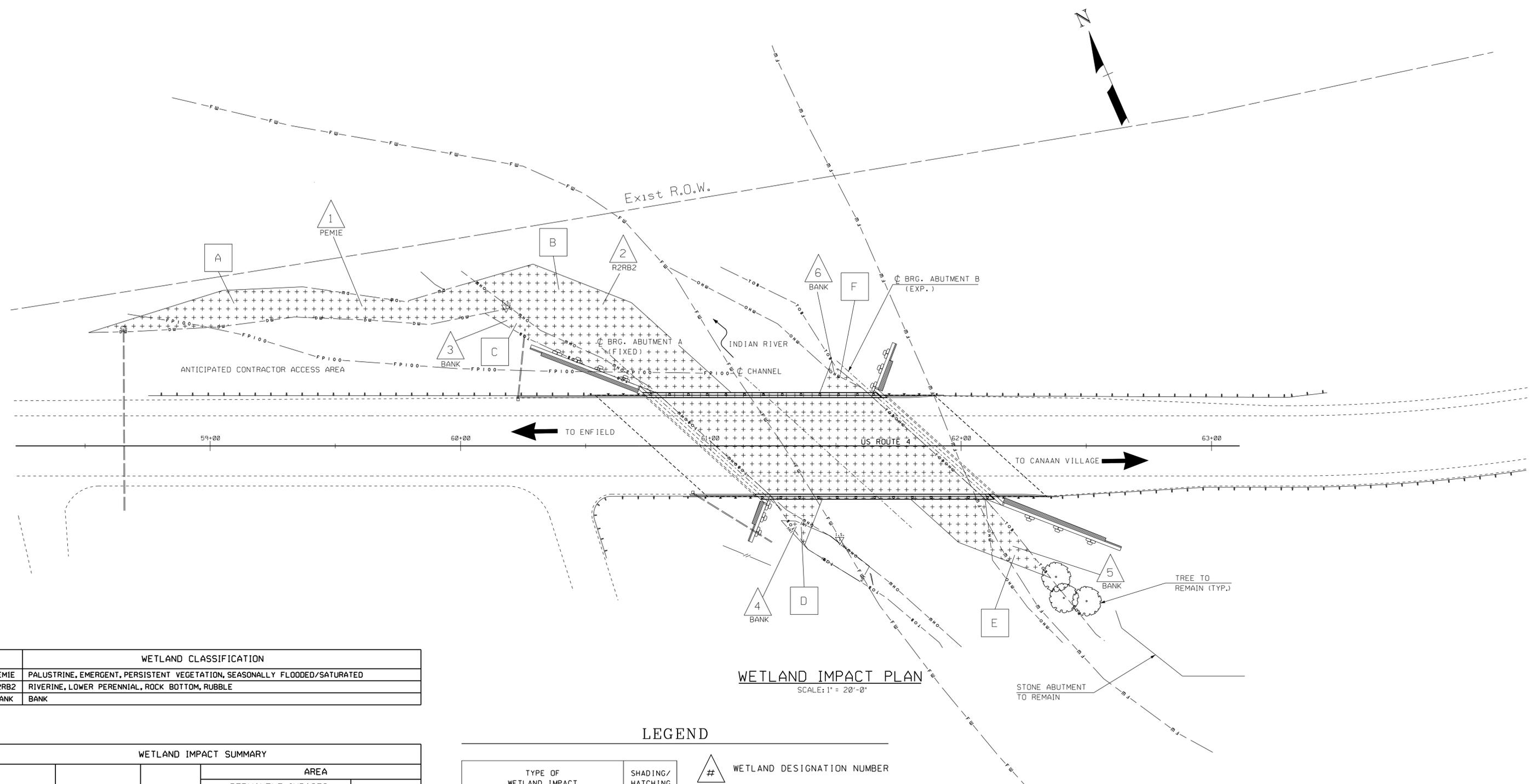
Conditions observed at
W-GAR-1.



Construction Sequence

The following construction sequence will be used during construction of the proposed project:

1. Install temporary traffic control and barriers.
2. Install temporary erosion control measures.
3. Install temporary construction access along NW roadway embankment, around NW wingwall, and under the bridge.
4. Install water diversion structures to direct the Indian River flow towards the center of the channel (away from the abutments).
5. Continue installation of temporary access across the river to the east abutment (Abutment B and wingwalls).
6. Install sandbag cofferdam at east abutment, install sediment filtration and dewater the work zone.
7. Determine locations of concrete repairs for all abutments and wingwalls.
8. Install temporary staging and repair deteriorated concrete in the abutments and wingwalls.
9. Install containment, paint beam ends & bearings, and replace strip seal expansion joint at east abutment (Abutment B).
10. Replace deteriorated top of SE wingwall.
11. Repair bridge deck and bridge curbs, and place pavement utilizing phased construction.
12. Coat all exposed concrete with waterproofing and crack sealing products.
13. Remove cofferdam, sediment filtration, water diversion structures, and temporary access.
14. Restore the site and stabilize disturbed ground.
15. Remove temporary erosion control measures.
16. Remove temporary traffic control and barriers.



WETLAND CLASSIFICATION	
PEMIE	PALUSTRINE, EMERGENT, PERSISTENT VEGETATION, SEASONALLY FLOODED/SATURATED
R2RB2	RIVERINE, LOWER PERENNIAL, ROCK BOTTOM, RUBBLE
BANK	BANK

WETLAND IMPACT SUMMARY								
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA					
			PERMANENT IMPACTS				TEMPORARY IMPACTS	
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)			
SF	LF	SF	LF	SF	LF	SF	LF	
1	PEMIE	A			1657	169		
2	R2RB2	B					6177	228
3	BANK	C					332	75
4	BANK	D					74	24
5	BANK	E					261	41
6	BANK	F					25	16

PERMANENT IMPACTS: 0 SF
 TEMPORARY IMPACTS: 8526 SF

TOTAL IMPACTS: 8526 SF

WETLAND IMPACT PLAN

SCALE: 1" = 20'-0"

LEGEND

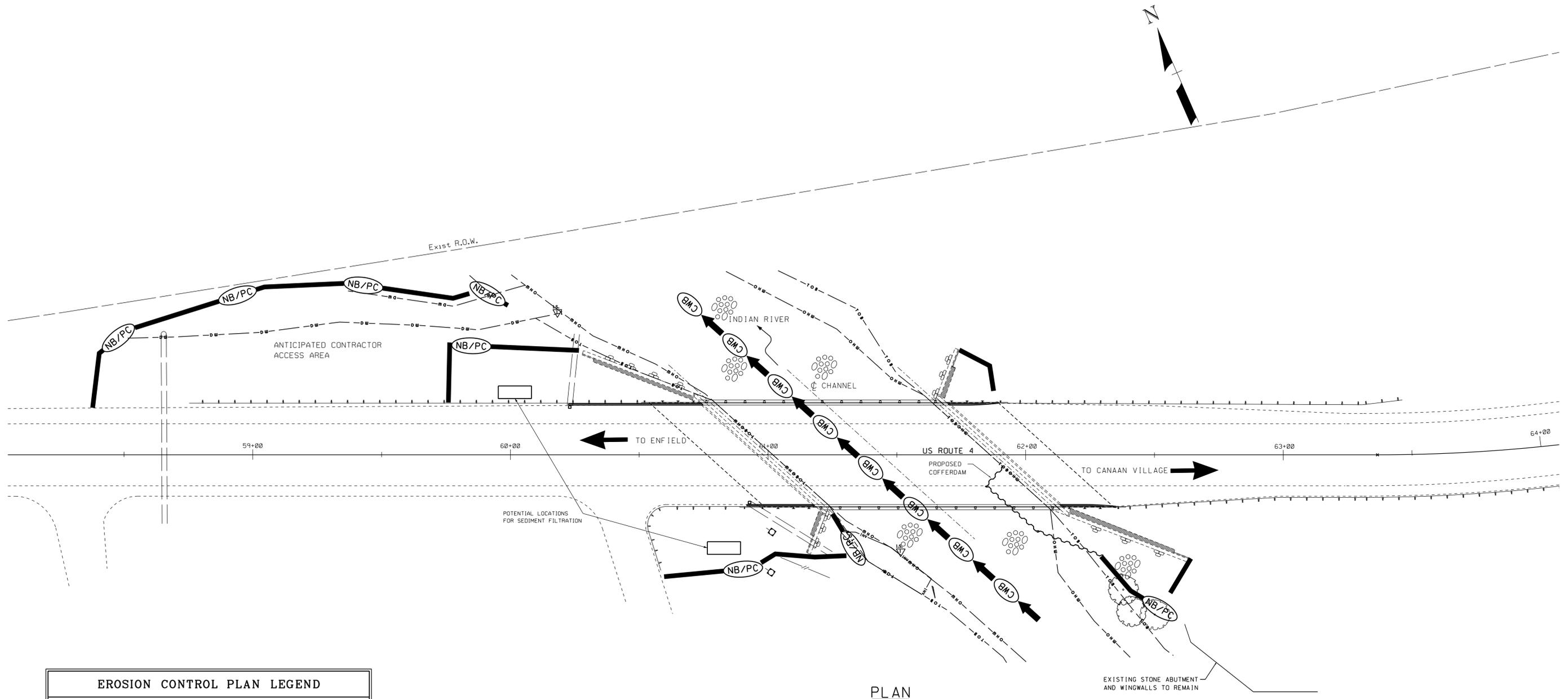
TYPE OF WETLAND IMPACT	SHADING/HATCHING	SYMBOL	DESCRIPTION
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	[Diagonal Hatching]	#	WETLAND DESIGNATION NUMBER
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	[Solid Grey]	#	WETLAND IMPACT LOCATION
TEMPORARY IMPACTS	[Cross-hatching]	#	WETLAND MITIGATION AREA
	[Empty Box]		MITIGATION



WETLANDS DELINEATED BY TRC WETLANDS SCIENTISTS KEVIN FERGUSON AND GREG RUSSO ON 10/26/2020

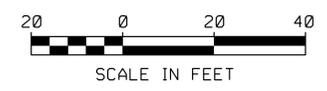
STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	CANAAN	BRIDGE NO.	169-073	STATE PROJECT	42938	BRIDGE SHEET			
LOCATION U.S. ROUTE 4 OVER INDIAN RIVER						1 OF 1			
WETLAND IMPACT PLAN									
DESIGNED		BY	DATE	CHECKED		BY	DATE	FILE NUMBER	
DRAWN		ERC	3/23/2021	CHECKED		TWP	3/23/2021	KLJ 3/23/2021	
QUANTITIES		CHECKED							
ISSUE DATE		FEDERAL PROJECT NO.			SHEET NO.		TOTAL SHEETS		
REV. DATE		-----			1		1		

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
XX	WetlandImpact 169073	AS NOTED



PLAN

EROSION CONTROL PLAN LEGEND	
	PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	NATURAL BUFFER/PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	CHANNEL PROTECTION
	STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
	CLEAN WATER BYPASS
	PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL



STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	CANAAN	BRIDGE NO.	169/073	STATE PROJECT	42938
LOCATION	U.S. ROUTE 4 OVER INDIAN RIVER				
EROSION CONTROL PLAN					BRIDGE SHEET
REVISIONS AFTER PROPOSAL					1 OF 1
DESIGNED	BJG	DATE	3/24/2021	CHECKED	LSF 3/24/2021
DRAWN	MC	DATE	3/24/2021	CHECKED	
QUANTITIES					FILE NUMBER
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
REV. DATE				1	1

.DGN LOCATOR	SHEET SCALE
42938ENV00WSP	AS NOTED

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
 - 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
 - 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
 - 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
 - 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
 - 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WO 1500 REQUIREMENTS ([HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM](http://des.nh.gov/organization/commissioner/legal/rules/index.htm))
 - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
 - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
 - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
 - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
 - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
 - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
 - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
 - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
 - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
 - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30th AND MAY 1st OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
 - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15th, OR WHICH ARE DISTURBED AFTER OCTOBER 15th, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
 - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15th, OR WHICH ARE DISTURBED AFTER OCTOBER 15th, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
 - (C) AFTER NOVEMBER 30th INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
 - (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WO 1505.02 AND ENV-WO 1505.05.
 - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WO 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30th.

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
 - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
 - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
 - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
 - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
 - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
 - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
 - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
 - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1st THROUGH NOVEMBER 30th, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
 - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
 - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
 - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
 - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
 - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
6. PROTECT SLOPES:
 - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
 - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
 - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
 - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
 - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
 - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
8. PROTECT STORM DRAIN INLETS:
 - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
 - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
 - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
 - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
9. SOIL STABILIZATION:
 - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
 - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
 - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR. IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
 - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
 - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WO 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
 - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
 - 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
 - 11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
 - 11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
 - 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
 - 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
 - 11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
 - 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
 - 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
 - 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
 - 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
 - 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500; ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
 - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
 - 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
 - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
 - 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
 - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
 - 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
 - 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
 - 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
 - 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
 - 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
 - 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
 - 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
 - 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WO 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES ²				ROLLED EROSION CONTROL BLANKETS ³			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES ¹												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES	YES	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

- NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤ 10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
 2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
 3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

STATE OF NEW HAMPSHIRE NHNNNNNNNH				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
WETLAND IMPACT PLANS				
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	42938erosstrat	Number	1	1